

diversity of information, but gaining full participation in these services is often limited for individuals, schools, libraries, and other community and nonprofit institutions because high-bandwidth access to the NII remains expensive and scarce. In most cases, high-capacity access to the NII is available only through monopoly service providers who offer limited options at high prices. Where competitive options are available, they are often priced beyond the reach of individuals and local institutions.

An unlicensed NII Band can help alleviate this access bottleneck by creating a new competitive access option which operates without any single gatekeeper. Such a service will stimulate competition with existing access providers and offer consumers, especially schools, libraries, community institutions, and individuals, a more flexible and affordable method of connecting to the NII. The unlicensed wireless service as proposed in Apple Computer's NII Band Petition is in the public interest inasmuch as it: 1) promotes ubiquitous, affordable access to the NII for citizens all around the country, 2) increases the diversity of information sources available on the NII, and 3) forms a platform for a vibrant new public forum for political discourse at a local and national level.

A. Unlicensed, high bandwidth wireless service is an innovative approach to the still-unbroken "last mile" access bottleneck and will promote ubiquitous access to the NII

Despite all of the excitement surround developments in interactive communications media such as the Internet and commercial online services, access to these services remain limited by a dearth of high-capacity network access options and uneven geographic availability such high-speed access technologies that do exist. A new means of providing high bandwidth, "last mile" connectivity. Unlicensed wireless service as proposed by the Apple NII Band Petition is an option that should be aggressively promoted by the Commission in order to enable an alternative access path to the NII.

Experience from the rapid and unregulated development of the Internet suggests that gateway-free, packet-based transport technologies can be a fertile platform for the development of new information and communication services, and promote easy access to a large number of users. The NII Band proposal should be pursued a communications access option that will promote a true First Amendment diversity of information sources and be the basis of vibrant public forum in cyberspace.

1. Cyberspace is booming but end-user access options are limited by monopolistic pricing and regulatory delays

The last few years have seen explosive growth in the development of the new interactive media including the Internet, commercial online services, as well as small computer bulletin board services, Freenets, and other interactive technology. Taken together, these developments hold out the promise of a true information revolution that will alter the way that our society does politics, business, education, and healthcare. However, the potential of these new technologies for our democracy, our economy, and our culture will only be realized if all Americans have easy and affordable access to the growing information infrastructure. Without the opportunity for full participation, the interactive media will not grow, and our society will suffer from continued social alienation, failures in our democratic process, and increased economic stratification.

Over the last ten years, telecommunications policy makers have been debating various statutory and regulatory policy steps that could be taken to make high bandwidth access to the NII more widespread and more affordable. Regrettably, policy changes have been slow and actual advances in access options have been virtually nonexistent. Indeed, the vast majority of individuals and small institutions still are limited to access through analog telephone lines. Prices remain reasonable, but bandwidth limitations keep multimedia services beyond the reach of those tethered to the NII by POTS lines. The only bandwidth increases have come as a result of innovations in modem technology, which have pushed effective access speed up from 1200 bits per second to 28,800 bits per second.

High bandwidth services in the wireline infrastructure has been slow in coming because of high capital costs for full broadband upgrades, as well as slow marketing practices and regulatory delays for wideband services such as ISDN.[1] In many cases these delays arise out of legitimate questions as to the wisdom of high-cost upgrades, as well as genuine difficulties in adapting old regulatory structures to new services. However, the net result is delay in end user access to cyberspace.

2. Unlicensed wireless services such as the NII Band can break the access bottleneck

Clearly, a new approach to "last mile" bandwidth is needed. The Internet is a useful case study in successful stimulation of the development of a range of new information and communications services. By creating an alternative communications platform, the Internet was able to stimulate the development of a number of new

services and, in fact, a whole new communications medium. As developed by the Advanced Research Projects Agency and then the National Science Foundation, the Internet as conceived as a "test bed" for the development of NII services. On a platform of packet-switching technologies, basic addressing schemes, and other technical standards, the Internet did indeed serve as a seedbed for the development of numerous services such as electronic mail, the World Wide Web, and Usenet newsgroups.

By providing an alternative path for access to the NII, the unlicensed wireless services can help alleviate the current access bottleneck that hampers participation in the NII by individuals, schools, libraries, and other small institutions.

B. Unlicensed wireless service with sufficient bandwidth will increase the diversity of information sources accessible to all Americans

Since its inception, the Commission has sought to increase the diversity of information sources available to the American public. In the case of the broadcast media, diversity enhancing policies have included the fairness doctrine, equal time rules, and children's programming rules. These policies were necessary to assure that the scarce radio and television spectrum was used in way that reflected the broad needs of all Americans.

The potential abundance of new interactive, digital communications media such as the Internet and commercial online services require a new approach to achieving the First Amendment diversity goal. Unlike broadcast media which are characterized by a scarcity of communications channels, new interactive media have an inherent abundance of communications opportunities which enable all users to be information providers as well as information receivers. However, the First Amendment diversity goal will only be achieved if individual users from a diversity of institutions and geographical settings have access to the NII. There is no channel scarcity in interactive media to pose the kind of diversity barriers that exist in the mass media. However, the potential abundance of interactive media will be squandered if access to the NII is limited because of access bottlenecks such as now exist to the NII from lack of high-capacity, widely available access options. Unlicensed wireless services which offer high capacity, bi-directional access without the interference of gatekeepers can play a critical role in promoting a diversity of information sources in the growing NII.

C. Unlicensed wireless service can be the platform for a vibrant "public forum" in cyberspace

For some time policy makers [2] have struggled with the question of how to promote affordable and widely available access to new interactive media for the nonprofit sector, including schools, libraries, and community groups. These groups often cannot afford the high cost of currently available access services, but their participation in the NII is vital both for their own institutional missions and in order to assure a lively public forum for the healthy functioning of our democracy. Policy proposals currently under consideration seek regulatory means to provide low cost access to the NII for eligible groups in the nonprofit sector. An NII Band that provides gateway-free, no cost access to the NII could become an important part of the solution to difficult public access issues that face communications policy makers as our society comes to rely more and more on new interactive media.

III. Rules Implementing the NII Band Proposal Should Emphasize Equal Access, Bi-directional Communications, and an Open Standards-Setting Process

The Center for Democracy and Technology endorses the major functional specifications for the NII Band as outlined in Apple Computer's Petition. We believe that the Commission should work to implement these goals. In these comments, we would place special emphasis on the equal access goal cited in Apple Computer's Petition and would also add an explicit requirement that NII Band services incorporate bi-directional communication for all users as a part of the basic service available to individual users.

A. Equal access, decentralized network architecture is a critical component of any NII service

CDT endorses the equal access goal set out in the Apple Petition and here notes that an equal access, open network is a critical architectural component of the NII as it develops. The architectural characteristics of the NII will

have a critical impact on the diversity of information sources available, as well as the ease of access for individuals and communities around the country.[3] The analog public switched telephone network enables 'many-to-many' communication but suffers from bandwidth constraints which limit most Americans' access to multimedia network services.

A true diversity of information in new interactive media will require that all Americans have access to network services that enable communications from any point to any other point, without the interference of information gatekeepers such as are found in the mass media today. As such, the network architectures available to individuals and institutions will have a determinative impact on the First Amendment free flow of information in the information age. The Commission should promote network services based on architectures that enable individuals and institutions to communicate with anyone around the country or the world, without the barriers to diversity that may be imposed by communications gatekeepers.

An open access[4] network, such as the NII Band would enable point-to-point communications around a local area, as well as easy access to global, open networks such the Internet. Therefore, in the interest in the First Amendment diversity and free flow of information, the Commission should seek policies which, to the greatest extent possible, promote open, many-to-many communications services.

**B. NII Band must support bi-directional communications as a basic feature for all users**

Full participation in the communication an information exchange that is the NII requires that individuals have bi-directional access to NII elements such as the Internet and other interactive media. In order to promote the full economic, cultural, educational, and political uses of interactive media, access must be bi-directional. This is not to say that every application will require fully symmetrical communications, but such options should exist and be available to all users on demand. While it may be implicit in the Apple Petition, CDT suggests that the Commission include bi-directional communications as a basic criterion for NII Band Services.

**C. Technical standards should be developed by the private sector, with opportunity for Commission review in the event that basic functional service goals are not met**

CDT concurs with Apple Computer's suggestion that technical standards for NII Band services should be developed by the private sector, according to broad functional requirements set out by the Commission. We do believe, however, that the Commission should reserve the option to review standards as they are developed and implemented in the event that such standards do not meet the goals established by the Commission's decisions.

**IV. Conclusion**

In order to promote the development of the NII as an open access, decentralized, gatekeeper-free network of networks, the Center for Democracy and Technologies encourages the Commission to take whatever steps are necessary to enable the implementation of NII Band services.

Respectfully Submitted,

The Center for Democracy and Technology  
Daniel J. Weltzner  
Deputy Director